

The dccpaper bundle: Classes for submissions to IJDC and IDCC

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Abstract

This is the documentation for the dccpaper bundle, consisting of the following classes:

- ijdc-v9, which corresponds to the template used by the International Journal of Digital Curation, beginning with volume 9.
- idcc, which corresponds to the template used for the International Digital Curation Conference, beginning with IDCC15.

The version to which it relates is v1.2, last revised 2014-04-11.

The code for this bundle is maintained at <https://github.com/DigitalCurationCentre/dccpaper>.

Versions of the templates are also available that target Microsoft Word and LibreOffice/OpenOffice.org.

Please note that the DOI attached to this document is fake and should not be used for identification purposes.

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Introduction

The \LaTeX class `ijdc-v9` produces camera-ready papers and articles suitable for inclusion in the International Journal of Digital Curation, with applicability from volume 9 onwards. The similar `idcc` class can be used for submissions to the International Digital Curation Conference, beginning with the 2015 conference. This document explains how to use these classes.

Dependencies

Certain aspects of the template design have been implemented using third-party packages, aside from those that are required parts of the \LaTeX system. Therefore you should ensure that you have these packages installed on your system before attempting to use the class.

- `titlesec` is used to format the section headings.
- Tables in your document must be formatted according to the design principles promoted and supported by the `booktabs` package.
- `caption` is used to format the figure and table captions.
- `etoolbox` is used behind the scenes for patching commands.

In some cases the class prefers to use packages that are not part of the base installation (but are nevertheless commonly available in \TeX distributions), but will fall back to their base equivalents if necessary.

- `newtx` will be used if available in place of `times`.
- `xcolor` will be used if available in place of `color`.

For referencing, you are encouraged to use either `biblatex` using the styles provided by `biblatex-apa` (preferred), or `apacite`.

Loading the classes

The class is loaded in the usual way with `\documentclass[<options>]{ijdc-v9}` or `\documentclass[<options>]{idcc}`.

The following options are available for `ijdc-v9`:

paper Use this for peer-reviewed papers.

article Use this for general (non-peer-reviewed) articles if you like, but you do not have to as the class defaults to this state.

editorial Use this for an editorial.

Two types of option are available for `idcc`. The first relates to the type of submission:

research Use this for full research papers.

practice Use this for extended abstracts of practice papers, and full practice papers.
The class defaults to this state, making this option even more optional than normal.

poster Use this for poster abstracts.

demo Use this for demonstration proposals.

workshop Use this for workshop proposals.

The second type of option relates to the conference to which the submission will be made:

15 Use this for the 2015 conference.

Preamble commands

The following commands should be given in the preamble to fill out the document metadata.

The following command should be used in all submissions.

\title*[{short version}]{full version}* The long version of the title is shown on the cover page of the submission, while the short version appears in the (even page) headers.

The following commands should be given in general articles and IDCC submissions. They should *not* be given in peer-reviewed IJDC papers until after the peer review process is complete.

\author*{<name>}* The name of one author. Repeat the command for each additional author.

It is customary in IJDC and IDCC papers to group authors by institution. Within each institution, the authors are ordered by the level of contribution (or alphabetically where this is equal), and the institutional groups are ordered by the level of contribution of the first author in the group (or alphabetically by first author where this is equal). A different convention may be used if appropriate.

\affil*{<name>}* The affiliation (institution, company) of the immediately preceding author(s). This command may be repeated as necessary.

\correspondence*{<name, postal address> Email: \email{<email address>}}* Name, address and email address of the corresponding author. This information appears in the footer of the cover page.

For IDCC papers, authors are invited to record the date on which they made their submission.

\submitted*{<date>}* The date on which the initial submission was made to the conference by the authors.

Some additional commands are used by the editorial team when preparing a submission for publication. Though authors would not normally need to use them, here they are for completeness.

`\received{<date>}` The date on which the initial submission was received by the editorial team (IJDC papers only).

`\revised{<date>}` The date on which the latest revision was received by the editorial team.

`\accepted{<date>}` The date on which the submission was accepted for publication.

`\subno{<number>}` The submission number allocated by the IJDC Open Journal System.

`\volume{<number>}` The number of the IJDC volume in which the submission will be published.

`\issue{<number>}` The number of the IJDC issue in which the submission will be published.

`\date{<year>}` The year in which the submission will be published.

Document body

When it comes to writing the body of the submission, the template should allow you to use the usual \LaTeX markup without much adaptation. So, for example, you would start as in Figure 1.

```
\begin{document}
\maketitle

\begin{abstract}
Text of the abstract\dots
\end{abstract}

\section{Introduction}

The text of the introduction starts here\dots
```

Figure 1. Sample code for the beginning of an IJDC submission.

Please note that if submitting an abstract or proposal to the IDCC instead of a full paper, you should *not* use the `abstract` environment. Instead, start with a section headed ‘Abstract’ as in Figure 2. Further guidance on how to write such submissions is given on the conference website.

IJDC and IDCC papers follow the formatting conventions specified by the American Psychological Association (APA, 2010), with a few minor changes. There are some instances where this affects how you write your submission.

```

\begin{document}
\maketitle

\section{Abstract}

The text of the abstract or proposal starts here\dots

```

Figure 2. Sample code for the beginning of an IDCC abstract or proposal.

Headings

Five levels of heading are defined (`\section` down to `\subparagraph`) but most authors only need the first one or two levels. `\section` and `\subsection` headings should be written in title case, that is, with Each Significant Word Given an Initial Capital, while the remaining headers should be written in sentence case as if running text. Do not end your heading names with full stops/periods.

Quotations

Quotations should be put in a quote environment, wrapped in inverted commas, with the citation placed in parentheses at the end.

‘Cras porttitor dictum lacus. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. In consectetur, diam at volutpat elementum, libero lectus pulvinar sem.’ (Borgman, 2007)

Tables

- Table text should be in the `\small` font size.
- Tables should not use vertical lines to separate columns, and ideally should not use horizontal lines to separate rows in the body of the table; white space and text alignment should be sufficient. See the documentation of the `booktabs` package for more information.
- Text in the body of tables should normally be left-aligned. Numeric data should be aligned at the decimal point among itself but centred with respect to the heading; the D column type from the `dcolumn` package and the S column type from the `siunitx` package are particularly useful for this.
- Where decked (subdivided) headings are used, there should be a border beneath the upper-level heading (column spanner) indicating to which of the lower-level headings it applies.
- Empty cells can either be left blank or represented by an em dash. A blank cell indicates non-applicability, while an em dash signifies that the data was not collected or has been omitted.
- Captions should end in a full stop/period.

Table 1 demonstrates these features. The code used to produce the table is shown in Figure 3 (note that the siunitx package was loaded in the preamble).

Table 1. Papers and articles published in the IJDC in 2008 and 2009.

Issue	Frequency		Percentage	
	Peer-reviewed	General	Peer-reviewed	General
3(1)	9	7	56.3	43.8
3(2)	5	7	41.7	58.3
4(1)	10	4	71.4	28.6
4(2)	8	6	57.1	42.9
4(3)	3	15	16.7	83.3

```

\begin{table}
\caption{Papers and articles published in the IJDC in 2008 and 2009.}
\label{tab:issues}
\sisetup{table-number-alignment=center,table-figures-integer=2,%
  table-figures-decimal=0}%
\centering\small
\begin{tabular}{lSSS[table-figures-decimal=1]%
  S[table-figures-decimal=1]}
\toprule
& \multicolumn{2}{c}{Frequency} & \multicolumn{2}{c}{Percentage} \\
\cmidrule(lr){2-3}\cmidrule(1){4-5}
Issue & {Peer-reviewed} & {General} & {Peer-reviewed} & {General} \\
\midrule
3(1) & 9 & 7 & 56.3 & 43.8 \\
3(2) & 5 & 7 & 41.7 & 58.3 \\
4(1) & 10 & 4 & 71.4 & 28.6 \\
4(2) & 8 & 6 & 57.1 & 42.9 \\
4(3) & 3 & 15 & 16.7 & 83.3 \\
\bottomrule
\end{tabular}
\end{table}

```

Figure 3. Code used to typeset Table 1.

Note the different relative positions of the table and figure captions.

Reference List and Citations

To use biblatex for your reference list, add the following to your preamble:

```

\usepackage[style=apa]{biblatex}
\addbibresource{<bib file>.bib}
\DeclareLanguageMapping{british}{british-apa}

```

and include `\printbibliography` at the end of the document.

To use `apacite` for your reference list, add the following to your preamble:

```
\usepackage{apacite}
\bibliographystyle{apacite}
```

and include `\bibliography{<bib file>}` at the end of the document.

In-text citations are given parenthetically in author–date format. If author forms part of the narrative, as with Rinaldo, Warnement, Baione, Kalfatovic and Fraser (2011), only the date is added in parenthesis, otherwise both author and date are given (Smith et al., 2003). Where multiple citations are given at once, the order should be the same as in the reference list, i.e. alphabetically by author, with co-authored works coming after singly-authored works, then chronologically (Borgman, Wallis & Enyedy, 2006; Digital Curation Centre, 2005; Mazairac & Beetz, *in press*; Santini, 2004a, 2004b; Smith et al., 2003; Witten & Frank, 2005). Please consult the documentation of the package you are using for how to achieve this.

Please do not cite entire websites through the reference list mechanism. Instead, provide the title of the website (in English) and the URL in a footnote.¹ If the title of the website is not clear from the visible pages, the contents of the HTML title element may be used. Other explanatory notes, whether about the body text or cited items, should also be given as footnotes rather than as endnotes or reference list annotations.²

Please provide digital object identifiers (DOIs) for referenced items where available.

The data underlying the results presented in the submission should be placed in an appropriate custodial environment and cited (Waterton, Watson & Norton, 2013), with the reference placed in the reference list. The `bibtex-apa` package provides a data entry type which should be used for datasets; the `entrysubtype` value should be ‘Data set’ or similar. If using `apacite`, use the `misc` entry type with a type value of ‘Data set’ or similar.

Acknowledgements

Any acknowledgements should be placed in a section immediately before the references.

References

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¹ Digital Curation Centre: <http://www.dcc.ac.uk/>

² This avoids unnecessary page turning or scrolling.

- Consultative Committee for Space Data Systems. (2012). *Reference model for an Open Archival Information System (OAIS)* (Magenta Book No. CCSDS 650.0-M-2). Retrieved from <http://public.ccsds.org/publications/archive/650x0m2.pdf>
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- Witten, I. H. & Frank, E. (2005). *Data mining: Practical machine learning tools and techniques* (2nd ed.). San Francisco, CA: Morgan Kaufmann.

Appendix

Change History

v1.2 2014-04-11

Added implementation, installation and licence sections to the Appendix of the documentation. Moved the majority of the file postamble information to the README, and synchronized the latter with the GitHub version. Improved the adaptation of apacite referencing to the house style.

v1.1 2014-03-06

Refactored the source for distribution through CTAN, and to allow the addition of the idcc class.

v1.0 2013-12-18

First public release of ijdc-v9 class.

Implementation

ijdc-v9.cls

```

1  %%
2  %% This is file 'ijdc-v9.cls',
3  %% generated with the docstrip utility.
4  %%
5  %% The original source files were:
6  %%
7  %% dccpaper.dtx (with options: 'ijdc9')
8  %%
9  %% -----
10 %% The dccpaper bundle: Classes for submissions to IJDC and IDCC
11 %% Author: Alex Ball
12 %% E-mail: a.ball@ukoln.ac.uk
13 %% License: Released under the LaTeX Project Public License v1.3c or later
14 %% See: http://www.latex-project.org/lppl.txt
15 %% -----
16 %%
17 \def\Version{2014/04/11 v1.2}
18 \NeedsTeXFormat{LaTeX2e}[1999/12/01]
19 \ProvidesClass{ijdc-v9}
20 [\Version\space Class for submissions to the International Journal of Digital
   Curation, volume 9 onwards.]

```

The type of paper is recorded in `\dccp@type`. The possible values are `GeneralArticle`, `Peer-ReviewedPaper`, or `Editorial`. The latter is provided through the constant `\dccp@editorial` so we can test for it later with ease.

```

21 \def\dccp@type{General Article}
22 \def\dccp@editorial{Editorial}

```

These three options set `\dccp@type` appropriately. The `editorial` option additionally switches page numbers to roman numerals. The `article` option is redundant, but included for symmetry.

```

23 \DeclareOption{editorial}{\let\dccp@type=\dccp@editorial%
24   \AtBeginDocument{% Editorials use Roman numerals for page numbers
25     \pagenumbering{roman}%
26     \renewcommand{\thelastpage}{\@roman\c@lastpage}%
27   }%
28 }
29 \DeclareOption{paper}{\def\dccp@type{Peer-Reviewed Paper}}
30 \DeclareOption{article}{\def\dccp@type{General Article}}
31 \ProcessOptions\relax

```

These definitions are used to fill out the headers and footers. They include some details that are defined in `dccpaper-base.tex` and provided by the user: `\thedate`, `\thevolume`, `\theissue`, `\thelastpage`, `\thedoi`.

```

33 \def\dccp@publ@long{International Journal of Digital Curation}
34 \def\dccp@publ@short{IJDC}
35 \def\dccp@publ@msg{The \emph{\dccp@publ@long} is an international journal
36 committed to scholarly excellence and dedicated to the advancement of digital
37 curation across a wide range of sectors. The \dccp@publ@short\ is published by
38 the University of Edinburgh on behalf of the Digital Curation Centre. ISSN:
39 1746-8256. URL: \url{http://www.ijdc.net/}}
40 \def\dccp@titlefoot@bib{%
41   \dccp@publ@long\
42   \thedate, Vol.\ \thevolume, Iss.\ \theissue, \thepage--\thelastpage.%
43 }
44 \def\dccp@titlefoot@doi{%
45   \url{http://dx.doi.org/\thedoi}\
46   DOI: \thedoi
47 }
48 \def\dccp@normhead@doi{doi:\thedoi}

```

`\dccp@subject` will be used for the PDF subject, and will specify the journal and the issue.

```

49 \def\dccp@subject{\dccp@publ@long, \thedate, Vol.\ \thevolume, Iss.\ \theissue}

```

The rest of the formatting happens in the following file.

```

51 \input{dccpaper-base}
52 %%
53 %% Copyright (C) 2014 Digital Curation Centre, University of Edinburgh
54 %% <info@dcc.ac.uk>
55 %%
56 %% End of file 'ijdc-v9.cls'.

```

idcc.cls

```

1 %%
2 %% This is file 'idcc.cls',

```

```

3  %% generated with the docstrip utility.
4  %%
5  %% The original source files were:
6  %%
7  %% dccpaper.dtx (with options: 'idcc')
8  %%
9  %% -----
10 %% The dccpaper bundle: Classes for submissions to IJDC and IDCC
11 %% Author: Alex Ball
12 %% E-mail: a.ball@ukoln.ac.uk
13 %% License: Released under the LaTeX Project Public License v1.3c or later
14 %% See: http://www.latex-project.org/lppl.txt
15 %% -----
16 %%
17 \def\Version{2014/04/11 v1.2}
18 \NeedsTeXFormat{LaTeX2e}[1999/12/01]
19 \ProvidesClass{idcc}
20   [\Version\space Class for submissions to the International Digital Curation
    Conference.]

```

These definitions are used to fill out the headers and footers. The ones for `\dccp@publ@short` and `\dccp@publ@msg` are a fallback, defined here but ordinarily overridden using a package option.

```

21 \def\dccp@publ@long{International Digital Curation Conference}
22 \def\dccp@publ@short{IDCC}
23 \def\dccp@publ@msg{The \dccp@publ@long\ takes place on [TBC] in [TBC]. URL:
24 \url{http://www.dcc.ac.uk/events/international-digital-curation-conference-idcc}}

```

`\dccp@subject` will be used for the PDF subject. The value here is again a fallback, ordinarily overridden using a package option.

```

25 \def\dccp@subject{\dccp@publ@long}

```

Paper type is recorded in `\def\dccp@type`. The values can be `Research_Paper`, `Practice_Paper`, `Poster`, `Demonstration`, or `Workshop`.

```

27 \def\dccp@type{Practice Paper}

```

These options set the value of `\def\dccp@type` appropriately. The `practice` option is redundant, but included for symmetry.

```

28 \DeclareOption{research}{\def\dccp@type{Research Paper}}
29 \DeclareOption{poster}{\def\dccp@type{Poster}}
30 \DeclareOption{demo}{\def\dccp@type{Demonstration}}
31 \DeclareOption{workshop}{\def\dccp@type{Workshop}}
32 \DeclareOption{practice}{\def\dccp@type{Practice Paper}}

```

The details for each conference are slightly different, so they each have an associated option for overriding the fallback definitions for `\dccp@publ@short`, `\dccp@publ@msg` and `\dccp@subject`.

```

33 \DeclareOption{15}{%
34   \def\dccp@publ@short{IDCC15}
35   \def\dccp@publ@msg{The 10th \dccp@publ@long\ takes place on [TBC] in [TBC].
36   URL: \url{http://www.dcc.ac.uk/events/idcc15/}}
37   \def\dccp@subject{10th \dccp@publ@long, 2015}
38 }
39 \ProcessOptions\relax

```

The rest of the formatting happens in the following file.

```

41 \input{dccpaper-base}
42 %%
43 %% Copyright (C) 2014 Digital Curation Centre, University of Edinburgh
44 %% <info@dcc.ac.uk>
45 %%
46 %% End of file 'idcc.cls'.

```

dccpaper-base.tex

```

1  %%
2  %% This is file 'dccpaper-base.tex',
3  %% generated with the docstrip utility.
4  %%
5  %% The original source files were:
6  %%
7  %% dccpaper.dtx (with options: 'base')
8  %%
9  %% -----
10 %% The dccpaper bundle: Classes for submissions to IJDC and IDCC
11 %% Author: Alex Ball
12 %% E-mail: a.ball@ukoln.ac.uk
13 %% License: Released under the LaTeX Project Public License v1.3c or later
14 %% See: http://www.latex-project.org/lppl.txt
15 %% -----
16 %%
17 \def\Version{2014/04/11 v1.2}
18 \ProvidesFile{dccpaper-base.tex}
19   [\Version\space Common class code for IJDC and IDCC papers.]

```

The dccpaper classes are deliberately very similar. This file contains the common code. All the classes are based on the article class, and use A4 paper.

```

20 \LoadClass[a4paper,12pt,twoside]{article}

```

We use British English orthography.

```

22 \RequirePackage[british]{babel}

```

The macro patching commands from etoolbox come in useful for handling author and date information, and also for compatibility with apacite.

```

23 \RequirePackage{etoolbox}

```

The dccpaper classes use Times as the main text font. We prefer newtx as it provides support for mathematics, but the standard times package will do. In case they are needed, we also provide Helvetica for the sans serif font and Computer Modern Teletype for the monospaced.

```

24 \RequirePackage[T1]{fontenc}
25 \IfFileExists{newtxtext.sty}%
26   {\RequirePackage{newtxtext,newtxmath}}%
27   {\RequirePackage{times}}
28 \RequirePackage[scaled=0.92]{helvet}
29 \renewcommand{\ttdefault}{cmtt}

```

We will need support for included graphics and colour. The structural elements are a medium turquoise, while the links are slightly darker to make them easier to read on screen.

```

30 \RequirePackage{graphicx}
31 \IfFileExists{xcolor.sty}%
32   {\RequirePackage{xcolor}}%
33   {\RequirePackage{color}}
34 \definecolor[named]{struct}{rgb}{0,0.5,0.5}
35 \definecolor[named]{links}{rgb}{0,0.4,0.4}

```

We will calculate some lengths later.

```

36 \RequirePackage{calc}

```

Ragged right text is easier to read on screen, but fully justified text looks better. The `\raggedyright` layout from Peter Wilson's memoir class (2005/09/25 v1.618) is an excellent compromise. The code below replicates it.

First we save the original definitions of `\` and `\parindent` as `\OrigLineBreak` and `\RaggedParindent` respectively.

```

38 \let\OrigLineBreak\
39 \newdimen\RaggedParindent
40 \setlength{\RaggedParindent}{\parindent}

```

The `\raggedyright` layout more or less lays text out as with full justification, but then lets the shorter lines relax a bit from the right margin. It is the default for DCC papers.

```

42 \newcommand{\raggedyright}[1][2em]{%
43   \let\\@centercr@rightskip \z@ \@plus #1\relax
44   \rightskip\@rightskip
45   \leftskip\z@skip
46   \parindent\RaggedParindent}
47 \AtBeginDocument{\raggedyright}

```

The `\flushleftright` layout restores full justification, in case it is needed.

```

49 \newcommand*{\flushleftright}{%
50   \let\\@centercr@rightskip \z@ \@plus #1\relax
51   \leftskip\z@skip

```

```

52 \rightskip\leftskip
53 \parfillskip\@flushglue
54 \everypar{}}

```

The classes have some special metadata requirements. We start with the author information.

The macro `\thecorrespondence` is used in the title page footer for the name, postal address and email address of the corresponding author.

```

56 \def\thecorrespondence{}
57 \newcommand*{\correspondence}[1]{\def\thecorrespondence{#1}}

```

The handling of authors here is inspired by Patrick W Daly's `authblk`, (2001/02/27 1.3), and defines the familiar user commands. Authors are presented in blocks, one affiliation but perhaps several authors per block.

We make the presentation of the author information configurable (just in case) with some hooks and lengths:

- `\Authfont` is the font used for author names;
- `\Affilfont` is the font used for affiliations;
- `\affilsep` is the line spacing between author names and affiliations;
- `\authblksep` is the line spacing between author name/affiliation blocks.

```

58 \newcommand*{\Authfont}{\normalfont}
59 \newcommand*{\Affilfont}{\normalfont\small}
60 \newlength{\affilsep}\setlength{\affilsep}{0pt}
61 \newlength{\authblksep}\setlength{\authblksep}{1.5\baselineskip}

```

The `\AuthorBlock` command will be used to collect all the author information.

```

62 \newcommand{\AuthorBlock}{}

```

The `\MainAuthor` command collects abbreviated author information for use in the headers.

```

63 \newcommand{\MainAuthor}{}

```

We define counters for

- the total number of authors defined;
- the number of authors in the current block;
- the number of blocks defined.

```

64 \newcounter{authors}
65 \newcounter{authorsinblock}
66 \newcounter{block}

```

The `block` counter will increase once in the preamble, and again when the information is typeset, so we need to reset it at the beginning of the document.

```
67 \AtBeginDocument{\setcounter{block}{0}}
```

The new definition of the author command starts here.

```
68 \renewcommand{\author}[1]{%
```

If this is the first or second `\author` command, we add the name to our abbreviated list of authors. Otherwise, we replace the name of the second and subsequent authors with `et al.` in that list.

```
69 \ifnum\theauthors=0
70 \def\MainAuthor{#1}%
71 \else
72 \ifnum\theauthors=1%
73 \def\OtherMainAuthors{ and #1}%
74 \appto\MainAuthor{\OtherMainAuthors}%
75 \else
76 \ifnum\theauthors=2%
77 \def\OtherMainAuthors{ et al.}%
78 \fi
79 \fi
80 \fi
81 \stepcounter{authors}%
```

Each block has its author names collected in a macro like `\blocki@auth`, and its affiliation collected in a macro like `\blocki@affil` (the `i` is a serial number).

If this is the first author in a block, we need to create the block and add it to `\AuthorBlock`; second and subsequent blocks are preceded by a `\quad` of space.

```
82 \ifnum\theauthorsinblock=0%
83 \stepcounter{block}%
84 \expandafter\def\csname block\roman{block}@auth\endcsname{#1}%
85 \ifnum\theblock>1\appto\AuthorBlock{\quad}\fi
86 \appto\AuthorBlock{%
87 \stepcounter{block}%
88 \begin{minipage}[t]{0.45\textwidth}\centering
89 \csname block\roman{block}@auth\endcsname
90 \ifx\undefined\csname block\roman{block}@affil\endcsname
91 \else
92 \\\[affilsep]\csname block\roman{block}@affil\endcsname
93 \fi
94 \end{minipage}%
95 \rule{0pt}{2\baselineskip}%
96 }
97 \else
```

Otherwise we just add the name to the right `\blocki@auth`-style macro.

```
98 \csappto{block\roman{block}@auth}{, #1}%
99 \fi
100 \stepcounter{authorsinblock}%
101 }
```

The `\affil` command adds an affiliation to the current block and closes it by resetting the `authorsinblock` counter.

```
102 \newcommand{\affil}[1]{%
103   \expandafter\def\csname block\roman{block}@affil\endcsname{\Affilfont#1}%
104   \setcounter{authorsinblock}{0}%
105 }
```

The `\HeadTitle` collects the abbreviated title for use in the headers.

```
107 \newcommand*{\HeadTitle}{}%
```

We wrap the normal `\title` command with code to populate `\HeadTitle` with the optional argument if provided, or the mandatory one otherwise. We also provide a persistent `\thetitle` macro, stripped of any `\thanks`.

```
108 \let\ProperTitle=\title
109 \renewcommand{\title}[2] [\empty]{%
110   \ifx\empty #1%
111     \renewcommand*{\HeadTitle}{#2}%
112   \else
113     \renewcommand*{\HeadTitle}{#1}%
114   \fi%
115   \begingroup\let\footnote\@gobble
116   \ProperTitle{#2}%
117   \begingroup
118     \renewcommand{\thanks}[1]{}
119     \protected@xdef\thetitle{#2}
120   \endgroup\endgroup
121 }
```

We make `\thedata` persistent, borrowing the technique used in Peter Wilson's memoir class (2005/09/25 v1.618).

```
123 \pretocmd{\date}{\begingroup\let\footnote\@gobble}{\}{\}%
124 \apptocmd{\date}{\%
125   \begingroup
126     \renewcommand{\thanks}[1]{}
127     \protected@xdef\thedata{#1}
128   \endgroup\endgroup%
129 }{\}{\}
```

We ensure `\thedata` is defined using a dummy date.

```
130 \date{20xx}
```

IJDC articles have extra bibliographic information:

- `\volume` sets the volume number, `\thevolume`;
- `\issue` sets the issue number, `\theissue`;
- `\subno` sets the submission number, `\thesubno`.

These numbers are used to build the DOI, `\thedoi`.


```

132 \newcommand*{\thevolume}{0}
133 \newcommand*{\volume}[1]{\renewcommand*{\thevolume}{#1}}
134 \newcommand*{\theissue}{0}
135 \newcommand*{\issue}[1]{\renewcommand*{\theissue}{#1}}
136 \newcommand*{\thesubno}{0}
137 \newcommand*{\subno}[1]{\renewcommand*{\thesubno}{#1}}
138 \newcommand*{\thedoi}{10.2218/ijdc.v\thevolume i\theissue .\thesubno}

```

They also display the page range. The following code was borrowed from Peter Wilson's memoir class (2005/09/25 v1.618). It defines a counter `lastpage` which, on the second run, will contain the number of the last page.

```

139 \newcounter{lastpage}
140 \setcounter{lastpage}{0}
141 \newcommand{\dol@stpage}{%
142   \if@filesw
143     \addtocounter{page}{-1}%
144     \immediate\write\@auxout%
145       {\string\setcounter{lastpage}{\the\c@page}}%
146     \stepcounter{page}%
147   \fi
148 }
149 \AtBeginDocument{\AtEndDocument{\clearpage\dol@stpage}}

```

DCC papers display some important dates. We collect these in `\dccp@dates`, initially setting the value to something sensible for papers in draft.

```

151 \def\dccp@dates{\emph{Draft from} \today}

```

Several types of date can be added:

- `\submitted` for when the authors submitted the paper (intended for IDCC papers).
- `\received` for when the paper was received by the editorial board (intended for IJDC papers).
- `\revised` for when the most recent version was received by the editorial board.
- `\accepted` for when the paper was accepted by the editorial board.

```

152 \newcommand*{\submitted}[1]{%
153   \def\dccp@dates{\emph{Submitted} #1}}
154 \newcommand*{\received}[1]{%
155   \def\dccp@dates{\emph{Received} #1}}
156 \newcommand*{\revised}[1]{%
157   \appto\dccp@dates{%
158     \space\space\space\textbar\space\space\space
159     \emph{Revision received} #1}%
160   }
161 \newcommand*{\accepted}[1]{%
162   \appto\dccp@dates{%
163     \space\space\space\textbar\space\space\space
164     \emph{Accepted} #1}%
165   }

```

IJDC papers need to say if they had a previous life as a conference paper. This statement goes in `\dccp@conf`, which is initially empty. The user command for setting this text is `\conference`.

```

166 \let\dccp@conf=\empty
167 \newcommand*{\conference}[1]{%
168   \renewcommand*{\dccp@conf}{An earlier version of this paper was presented at
      #1.}%
169 }

```

The macro `\FixTextHeight` will be useful when switching from the first page geometry to the regular geometry for the rest of the paper. It is based on code from Hideo Umeki's geometry package (2002/07/08 v3.2).

```

171 \newcommand{\FixTextHeight}{%
172   \setlength\@tempdima{\textheight}%
173   \addtolength\@tempdima{-\topskip}%
174   \@tempcnta\@tempdima
175   \@tempcntb\baselineskip
176   \divide\@tempcnta\@tempcntb
177   \setlength\@tempdimb{\baselineskip}%
178   \multiply\@tempdimb\@tempcnta
179   \advance\@tempdima-\@tempdimb
180   \multiply\@tempdima\tw@
181   \ifdim\@tempdima>\baselineskip
182     \addtolength\@tempdimb{\baselineskip}%
183   \fi
184   \addtolength\@tempdimb{\topskip}%
185   \textheight\@tempdimb
186 }

```

The width of the textblock (on all pages) is 150mm, which on A4 paper implies margins of 30mm each. (Making both horizontal margins the same in a two-sided context makes the paper more pleasant to read on screen).

```

188 \setlength{\textwidth}{150mm}
189 \setlength{\oddsidemargin}{30mm - \hoffset - 1in}
190 \setlength{\evensidemargin}{30mm - \hoffset - 1in}

```

We also want a distance of 15mm from the top of the page to the top of the header, and two blank lines between the bottom of the header and the top of the textblock.

```

191 \setlength{\topmargin}{15mm - \voffset - 1in}
192 \setlength{\headsep}{2\baselineskip}

```

IJDC editorials have slightly different headers and footers. This requires testing for `\dccp@editorial` if it exists. In case it doesn't, we provide it.

```

194 \providecommand{\dccp@editorial}{Editorial}

```

The height of the footer can vary a lot. To keep it a fixed distance from the bottom of the page rather than the top, we need to vary the `\textheight` accordingly. This means

we need to measure the height of the footer. (The header is more predictable but we may as well measure it while we are at it).

Here we define the header and footer of the title page (i.e. the title page style), making sure we save them to auxiliary macros `\TitleHead` and `\TitleFoot` so we can measure them.

```

195 \def\ps@title{%
196   \def\@oddhead{%
197     \begin{minipage}{\textwidth}%
198       \centering
199       \LARGE\bfseries\color{struct}%
200       \ifx\dccp@type\dccp@editorial
201         \dccp@publ@long
202       \else
203         \dccp@publ@short\space\space\textbar\space\space\emph{\dccp@type}%
204       \fi
205       \par
206     \end{minipage}%
207   }%
208   \let\@evenhead=\@oddhead
209   \let\TitleHead=\@oddhead
210   \def\@oddfoot{%
211     \begin{minipage}[b]{\textwidth}%
212       \fontsize{9pt}{11pt}\selectfont
213       \ifx\dccp@type\dccp@editorial
214       \else
215         {\centering\dccp@dates\par}
216         \bigskip
217         Correspondence should be addressed to \thecorrespondence\par
218         \bigskip
219       \fi
220       \ifx\empty\dccp@conf
221       \else
222         \dccp@conf\par
223         \bigskip
224       \fi
225       \dccp@publ@msg\par
226       \bigskip
227       \begin{minipage}[b]{\linewidth - 25mm}
228         Copyright rests with the authors. This work is released under a Creative
229         Commons Attribution 4.0 International Licence. For details please see
230         \url{http://creativecommons.org/licenses/by/4.0/}%
231       \end{minipage}\hfill
232       \begin{minipage}[b]{19mm}
233         \href{http://creativecommons.org/licenses/by/4.0/}%
234         {\includegraphics[width=\hsize]{dccpaper-by}}%
235       \end{minipage}
236       \par
237       \bigskip
238       \makebox[0pt][l]{\parbox{0.4\hsize}{%
239         \ifx\undefined\dccp@titlefoot@bib\else\dccp@titlefoot@bib\fi
240       }}\hfill
241       \makebox[0pt][c]{\normalsize\thepage}\hfill
242       \makebox[0pt][r]{\parbox{0.4\hsize}{%
243         \raggedleft\ifx\undefined\dccp@titlefoot@doi\else\dccp@titlefoot@doi\fi
244       }}%
245     \end{minipage}%

```

```

246 }%
247 \let\@evenfoot=\@oddfoot
248 \let\TitleFoot=\@oddfoot
249 }

```

We set the normal page style to title here so that `\TitleHead` and `\TitleFoot` are defined, but we will override it with the dccpaper page style later.

```

250 \pagestyle{title}

```

The first page should use the title page style, however.

```

251 \AtBeginDocument{\thispagestyle{title}}

```

Here are the normal headers and footers (i.e. the dccpaper page style). We save them to `\NormalHead` and `\NormalFoot`, again so we can measure them.

```

253 \def\ps@dccpaper{%
254   \def\@oddhead{%
255     \begin{minipage}{\textwidth}\frenchspacing
256     {%
257       \fontsize{9pt}{11pt}\selectfont
258       \ifx\undefined\dccp@normhead@doi\else\dccp@normhead@doi\fi
259     }\hfill
260     {\MainAuthor}\space\space\space
261     \textcolor{struct}{\textbar}\space\space\space
262     \thepage\par
263     \vskip6pt\color{struct}{\hrule height 1bp}\par
264   \end{minipage}%
265 }%
266 \def\@evenhead{%
267   \begin{minipage}{\textwidth}
268   \thepage\space\space\space
269   \textcolor{struct}{\textbar}\space\space\space
270   {\HeadTitle}\hfill
271   {%
272     \fontsize{9pt}{11pt}\selectfont
273     \ifx\undefined\dccp@normhead@doi\else\dccp@normhead@doi\fi
274   }\par
275   \vskip6pt\color{struct}{\hrule height 1bp}\par
276 \end{minipage}%
277 }%
278 \let\NormalHead=\@oddhead
279 \def\@oddfoot{\begin{minipage}[b]{\textwidth}
280   \centering\bfseries\normalsize\color{struct}
281   \ifx\dccp@type\dccp@editorial
282     \dccp@publ@long
283   \else
284     \dccp@publ@short\space\space\textbar\space\space\emph{\dccp@type}%
285   \fi
286   \par
287 \end{minipage}}%
288 \let\@evenfoot=\@oddfoot
289 \let\NormalFoot=\@oddfoot
290 }
291 \pagestyle{dccpaper}

```

We need to wait until the author has supplied the necessary information before we can do our measuring and set the remainder of the geometry, so we do it at the end of the preamble. First we put our saved macros into boxes we can measure (i.e. `\dccp@firstpagehead`, `\dccp@firstpagefoot`, `\dccp@restpagehead`, `\dccp@restpagefoot`).

```

293 \AtEndPreamble{
294   \newsavebox{\dccp@firstpagehead}
295   \sbox\dccp@firstpagehead{\normalfont\TitleHead}
296   \newsavebox{\dccp@firstpagefoot}
297   \sbox\dccp@firstpagehead{\normalfont
298     \def\email#1{#1}\def\url#1{#1}\def\href#1#2{#2}\TitleFoot}
299   \newsavebox{\dccp@restpagehead}
300   \sbox\dccp@restpagehead{\normalfont\NormalHead}
301   \newsavebox{\dccp@restpagefoot}
302   \sbox\dccp@restpagefoot{\normalfont\NormalFoot}

```

We can now set the geometry of the title page...

```

303 \setlength{\headheight}{\ht\dccp@firstpagehead + \dp\dccp@firstpagehead}
304 \setlength{\footskip}{%
305   2\baselineskip + \ht\dccp@firstpagefoot + \dp\dccp@firstpagefoot
306 }
307 \setlength{\textheight}{%
308   \paperheight
309   - 30mm % 15mm top and bottom
310   - \headheight
311   - \headsep
312   - \footskip
313   + \baselineskip
314 }

```

... and provide a macro that will reset the geometry for the remaining pages.

```

315 \def\dccp@resetgeometry{%
316   \setlength{\headheight}{\ht\dccp@restpagehead + \dp\dccp@restpagehead}
317   \setlength{\footskip}{%
318     2\baselineskip + \ht\dccp@firstpagefoot + \dp\dccp@firstpagefoot
319   }
320   \setlength{\textheight}{%
321     \paperheight
322     - 30mm % 15mm top and bottom
323     - \headheight
324     - \headsep
325     - \footskip
326     + \baselineskip
327   }
328   \FixTextHeight
329 }
330 }

```

The `\maketitle` command is redefined to correct formatting. At the end it resets the geometry, but this only takes effect on the second page. It is here rather than at the end of the abstract in case the abstract itself spills over to the second page.

```

332 \renewcommand{\maketitle}{%
333   \null\nobreak\vspace*{-0.528\baselineskip}%
334   \begingroup
335     \centering
336     { \Large\thetitle\par}
337     \vspace{0.7\baselineskip}
338     \AuthorBlock\par
339     \vspace{1.7\baselineskip}
340   \endgroup\dccp@resetgeometry
341 }

```

The abstract environment is redefined in terms of an environment `widequote`, which mimics the `quote` environment, but is a bit wider. We also provide a hook, `\afterabstract`, so that if some annotation needs to be appended to the title page after the abstract, we can do that.

```

343 \newenvironment{widequote}{%
344   \list{}{}%
345   \setlength{\rightmargin}{2\parindent}%
346   \setlength{\leftmargin}{2\parindent}%
347 }%
348 \flushleft\right\item[]%
349 }{%
350   \endlist
351 }
352 \def\afterabstract{}
353 \renewenvironment{abstract}{%
354   \vskip1em%
355   \begin{center}%
356     {\bfseries\abstractname\vspace{- .5em}\vspace{\z@}}%
357   \end{center}%
358   \widequote\footnotesize
359 }{%
360   \endwidequote\afterabstract\newpage
361 }

```

We use the `titlesec` package to give headings the correct formatting. The settings below try to space out headings so they occupy an integer number of normal lines (an attempt at grid typesetting). They are a little complicated because we want it to work even if the heading appears at the top of the page.

```

363 \RequirePackage{titlesec}
364 \titlespacing*{\section}{0pt}{0pt}{\baselineskip}
365 \titlespacing*{\subsection}{0pt}{0pt}{0.6\baselineskip}
366 \titlespacing{\subsubsection}{\parindent}{\baselineskip}{0pt}
367 \titlespacing{\paragraph}{\parindent}{\baselineskip}{0pt}
368 \titlespacing{\subparagraph}{\parindent}{\baselineskip}{0pt}

```

An unfortunate side effect of spacing headings like this is that if a `\subsection` immediately follows a `\section` it forms an unsightly gap. To remedy this, we count how many paragraphs there have been since the last `\section`. Note that as we do not normally number the sections, an automatic reset of the `sectionpars` counter within the `section` counter won't work.

```

369 \newcounter{sectionpars}
370 \let\dccp@old@ep\everypar
371 \newtoks\everypar
372 \dccp@old@ep{\the\everypar\stepcounter{sectionpars}}

```

We need to manually reset `sectionpars` when `\section` is called. Also, the normal font size is 12pt/14.5pt, while `\Large` is 17pt/22pt; so the `\Large` line height = 1.5172 × normal line height. Nevertheless it seems to work better if we let the heading eat 0.528`\baselineskip` into the 2`\baselineskip` of padding above it.

```

373 \titleformat{\section}
374 [block]
375 {%
376   \vspace{2\baselineskip}%
377   \nobreak
378   \vspace*{-0.528\baselineskip}%
379   \setcounter{sectionpars}{0}%
380   \filcenter\normalfont\Large\bfseries
381 }
382 {\thesection}
383 {\quad}
384 {}

```

The others use a `\normalsize` font so that makes life easier. The format for `\subsection` command includes conditional spacing: if the `sectionpars` counter equals 2, this means the heading immediately follows a `\section`, so less white space is needed.

```

385 \titleformat{\subsection}
386 {%
387   \ifnum\thesectionpars>2%
388     \vspace{2\baselineskip}%
389   \else
390     \vspace{\baselineskip}%
391   \fi\nobreak
392   \vspace*{-0.6\baselineskip}%
393   \normalfont\normalsize\bfseries
394 }
395 {\thesubsection}
396 {\quad}
397 {}
398 \titleformat{\subsubsection}
399 [block]
400 {\normalfont\normalsize\bfseries}
401 {\thesubsubsection}
402 {\quad}
403 {}
404 \titleformat{\paragraph}
405 [block]
406 {\normalfont\normalsize\bfseries\itshape}
407 {\thesubsubsection}
408 {\quad}
409 {}
410 \titleformat{\subparagraph}
411 [block]

```

```

412 {\normalfont\normalsize\itshape}
413 {\thesubsubsection}
414 {\quad}
415 {}

```

DCC papers do not typically number their sections.

```

416 \setcounter{secnumdepth}{0}

```

To help with the display of tables we load the array and booktabs packages. As we don't like lines between rows in the table body, we stretch them out a bit so that white space does the job instead.

```

418 \RequirePackage{array,booktabs}
419 \renewcommand{\arraystretch}{1.25}

```

We use the caption package to give captions the right format.

```

421 \RequirePackage
422 [ format=hang
423 , labelsep=period
424 , font=small
425 , labelfont=bf
426 , figureposition=bottom
427 , tableposition=top
428 ]{caption}

```

Footnotes should be set right up against the left margin

```

430 \renewcommand\@makefnmark[1]{%
431   \parindent 1em%
432   \noindent
433   \@makefnmark~#1%
434 }

```

By default lists are quite loose. These settings help to tighten them.

```

436 \topsep = \z@
437 \partopsep = \z@

```

A DCC paper should either be using biblatex or apacite for references.

If biblatex is used, we need to ensure that the reference list heading is a normal section rather than a starred one so it appears in the PDF bookmarks.

```

439 \AtBeginDocument{
440   \@ifpackageloaded{biblatex}{%
441     \defbibheading{bibliography}[\refname]{\section{#1}}%
442   }{%

```

If apacite is used, we can do the same with a package option (see below). But there are a few other adaptations we need to make.

```

443   \@ifpackageloaded{apacite}{%

```


With `hyperref` loaded, `apacite` makes the whole of a citation a link to the reference list item. We patch `\@ifauthorsunequalc@de` so only the year portion gets linked.

```

444 \def\@ifauthorsunequalc@de#1{%
445   \if@F@cite
446     \@F@citefalse
447   \else
448     \if@Y@cite
449       {\@BAY}%
450     \fi
451     {\@BBC}%
452   \fi
453   \edef\@cite@undefined{?}%
454   \def\BBA{\@BBA}%
455   \if@A@cite
456     %%\hyper@natlinkstart{#1}% We remove this line...
457     {\csname b@\@citeb\APAC@extra@b@citeb\endcsname}%
458     %%\hyper@natlinkend% ...and this one.
459     \if@Y@cite
460       {\@BBAY}%
461     \fi
462   \fi
463   \if@Y@cite
464     \hyper@natlinkstart{#1}%
465     {\csname Y@\@citeb\APAC@extra@b@citeb\endcsname}%
466     \hyper@natlinkend
467   \fi
468   \let\BBA\relax
469 }

```

The Spanish language support file defines a different version of `\@ifauthorsunequalc@de`, which might override the patch we have just introduced. So we employ the same test that `apacite` uses when deciding whether to load that file; if successful, we patch the Spanish version. Note that as `apacite` loads language support files `\AtBeginDocument`, we have to do our thing after that, `\AfterEndPreamble`.

(Note that as we set the language to British English earlier, this should never be needed, but we try to be resilient to tinkering!)

```

470 \AfterEndPreamble{%
471   \@ifundefined{iflanguage}{%
472     \relax
473   }{%
474     \edef\APAC@tmp{nohyphenation}%
475     \ifx\language\APAC@tmp
476     \else
477       \edef\APAC@tmp{spanish}%
478       \ifx\language\APAC@tmp
479         \def\@ifauthorsunequalc@de#1{%
480           \if@F@cite
481             \@F@citefalse
482           \else
483             \if@Y@cite
484               {\@BAY}%
485             \fi
486             {\@BBC}%
487           \fi

```

```

488 \edef\@cite@undefined{?}%
489 \def\BBA{\@BBA}%
490 \@ifundefined{spanishe\@citeb\APAC@extra\b@citeb}%
491 {}% skip
492 {% Use 'e' instead of 'y' in Spanish
493 \global\let\oldBBA\BBA
494 \global\def\BBA{e\global\let\BBA\oldBBA}%
495 }%
496 \if@A@cite
497 %%\hyper@natlinkstart{#1}% We remove this line...
498 {\csname b@\@citeb\APAC@extra\b@citeb\endcsname}%
499 %%\hyper@natlinkend% ...and this one.
500 \if@Y@cite
501 {\@BBAY}%
502 \fi
503 \fi
504 \if@Y@cite
505 \hyper@natlinkstart{#1}%
506 {\csname Y@\@citeb\APAC@extra\b@citeb\endcsname}%
507 \hyper@natlinkend
508 \fi
509 \let\BBA\relax
510 }%
511 \fi
512 \fi
513 }%

```

Another thing apacite does `\AtBeginDocument` is set the URL style to monospaced. So we reset it back to normal roman type `\AfterEndPreamble`.

```

514 \urlstyle{APACrm}
515 }%

```

We pre-empt apacite's `\providecommand` of `\doi` with our own definition that includes the doi URI scheme label in the link, remembering to remove the one inserted by `\doiprefix`.

```

516 \newcommand{\doi}[1]{\href{http://dx.doi.org/#1}{\nolinkurl{doi:#1}}}%
517 \renewcommand{\doiprefix}{\unskip}%
518 }{}%
519 }%

```

Both biblatex and apacite use `\bibitemsep` for the space between bibliography items. Just in case they haven't been loaded, though, we protect our setting of that length with an `\ifx` test.

```

520 \ifx\undefined\bibitemsep
521 \else
522 \setlength{\bibitemsep}{1em plus 1ex minus 1ex}%
523 \fi
524 }

```

As mentioned above, if apacite is used, we can use a package option to ensure that the reference list heading appears in the PDF bookmarks.


```

560 \do\?{\mathbin{\url@apa@questionmark }}%
561 \do\!{\mathbin{\url@apa@exclamation }}%
562 \do\_ {\mathbin{\url@apa@underscore }}%
563 \do\ { \url@space} \do\%{ \url@percent} \do\ ^M{ \url@space}%
564 \url@force@Tilde}%
565 \def\url@OTnonTT{\do\<{\langle}\do\>{\mathbin{\rangle}}\do
566 \_ {\mathbin{\_}} \do\|{\mid} \do\{{\lbrace} \do\}{\mathbin{\rbrace}} \do
567 \backslash{\mathbin{\backslash}} \url@TildeSpecial}
568 }

```

We now embed the Creative Commons licence information in the PDF using an XMP packet. To do this, we employ the same technique as Scott Pakin’s hyperxmp (2014/01/02 v2.4). In order to avoid a bug whereby Adobe Acrobat confuses the XMP author information and the regular author information, though, we *only* embed the licence information.

We need to make sure that any characters to appear verbatim in the XMP packet are treated as ordinary characters and not active ones. The likely active characters are symbols and punctuation, so should be treated as other (category 12).

```

570 \begingroup
571 \catcode'\="=12
572 \catcode'\&=12
573 \catcode'\#=12
574 \catcode'\<=12
575 \catcode'\>=12
576 \catcode'\_ =12

```

We construct the XMP packet as the document begins.

```

577 \AtBeginDocument{%

```

For convenience we define `\sp` to be a level of indent, translating to three spaces.

```

578 \def\sp{\space\space\space}

```

The text of the XMP packet is recorded in `\cc@xmp@packet`. We use `^^J` to break lines.

```

579 \long\gdef\cc@xmp@packet{%
580 <?xpacket begin='' id=''?>^^J%
581 <x:xmpmeta xmlns:x='adobe:ns:meta/'>^^J%
582 <rdf:RDF xmlns:rdf='http://www.w3.org/1999/02/22-rdf-syntax-ns#'>^^J%
583 \sp<rdf:Description rdf:about=''>^^J%
584 \sp\sp xmlns:xapRights='http://ns.adobe.com/xap/1.0/rights/'>^^J%
585 \sp\sp<xapRights:Marked>True</xapRights:Marked>^^J%
586 \sp</rdf:Description>^^J%
587 \sp<rdf:Description rdf:about=''>^^J%
588 \sp\sp xmlns:dc='http://purl.org/dc/elements/1.1/'>^^J%
589 \sp\sp<dc:rights>^^J%
590 \sp\sp\sp<rdf:Alt>^^J%
591 \sp\sp\sp\sp<rdf:li xml:lang='x-default'>This work is licensed under a Creative
    Commons Attribution 4.0 International Licence.</rdf:li>^^J%
592 \sp\sp\sp</rdf:Alt>^^J%
593 \sp\sp</dc:rights>^^J%

```

```

594 \sp</rdf:Description>^^J%
595 \sp<rdf:Description rdf:about=''^^J%
596 \sp\sp xmlns:cc='http://creativecommons.org/ns#'^>^^J%
597 \sp\sp<cc:license rdf:resource='http://creativecommons.org/licenses/by/4.0/'/>^^J%
598 \sp</rdf:Description>^^J%
599 </rdf:RDF>^^J%
600 </x:xmpmeta>^^J%
601 <?xpacket end='r'?>^^J%
602 }%
603 }
604 \endgroup

```

Different workflows require the XMP packet to be embedded in different ways. PdfTeX can inject objects into PDFs natively.

```

605 \newcommand*{\ccxmp@embed@packet@pdftex}{%
606   \bgroup
607   \pdfcompresslevel=0
608   \immediate\pdfobj stream attr {%
609     /Type /Metadata
610     /Subtype /XML
611   }{\cc@xmp@packet}%
612   \pdfcatalog {/Metadata \the\pdflastobj\space 0 R}%
613   \egroup
614 }

```

The `\pdfmark` command defined by hyperref is respected by tools such as Dvipdf, Dvips, Dvipsone, etc.

```

615 \newcommand*{\ccxmp@embed@packet@pdfmark}{%
616   \pdfmark{%
617     pdfmark=/NamespacePush
618   }%
619   \pdfmark{%
620     pdfmark=/OBJ,
621     Raw={/_objdef \string{ccxmp@packet\string} /type /stream}%
622   }%
623   \pdfmark{%
624     pdfmark=/PUT,
625     Raw={\string{ccxmp@packet\string}
626       2 dict begin
627         /Type /Metadata def
628         /Subtype /XML def
629         currentdict
630       end
631     }%
632   }%
633   \pdfmark{%
634     pdfmark=/PUT,
635     Raw={\string{ccxmp@packet\string} (\cc@xmp@packet)}%
636   }%
637   \pdfmark{%
638     pdfmark=/Metadata,
639     Raw={\string{Catalog\string} \string{ccxmp@packet\string}}%
640   }%

```

```

641 \pdfmark{%
642   pdfmark=/NamespacePop
643 }%
644 }

```

Dvipdfm has its own `\special` command for inserting PDF objects, but it is a bit basic and requires advance knowledge of how long (in characters) the object is.

The `\ccxmp@count@spaces` macro counts the number of spaces in its parameter through a process of iteration, adding this figure to `\@tempcnta`.

```

645 \def\ccxmp@count@spaces#1 {%
646   \def\ccxmp@one@token{#1}%
647   \ifx\ccxmp@one@token\@empty
648     \advance\@tempcnta by -1
649   \else
650     \advance\@tempcnta by 1
651     \expandafter\ccxmp@count@spaces
652   \fi
653 }

```

The `\ccxmp@count@non@spaces` command counts the number of non-spaces in its argument through a process of iteration, adding this figure to `\@tempcnta`.

```

654 \newcommand*{\ccxmp@count@non@spaces}[1]{%
655   \def\ccxmp@one@token{#1}%
656   \ifx\ccxmp@one@token\@empty
657   \else
658     \advance\@tempcnta by 1
659     \expandafter\ccxmp@count@non@spaces
660   \fi
661 }

```

The `\ccxmp@string@len` command sets `\@tempcnta` to the number of characters (spaces + non-spaces) in its argument.

```

662 \newcommand*{\ccxmp@string@len}[1]{%
663   \@tempcnta=0
664   \expandafter\ccxmp@count@spaces#1 {} %
665   \expandafter\ccxmp@count@non@spaces#1{}%
666 }

```

So now, finally, is the command for embedding the packet using Dvipdfm.

```

667 \newcommand*{\ccxmp@embed@packet@dvipdfm}{%
668   \ccxmp@string@len{\ccxmp@packet}%
669   \special{pdf: object @ccxmp@packet
670     <<
671       /Type /Metadata
672       /Subtype /XML
673       /Length \the\@tempcnta
674     >>
675     stream^^J\ccxmp@packet endstream%
676   }%
677   \special{pdf: docview
678     <<

```

```

679 /Metadata @ccxmp@packet
680 >>
681 }%
682 }

```

X_YTeX creates PDFs with Xdvipdfmx, which supports a simpler `\special` for inserting objects that does not require us to count characters.

```

683 \newcommand*{\ccxmp@embed@packet@xetex}{%
684   \special{pdf:stream @ccxmp@packet (\ccxmp@packet)
685     <<
686       /Type /Metadata
687       /Subtype /XML
688     >>
689   }%
690   \special{pdf:put @catalog
691     <<
692       /Metadata @ccxmp@packet
693     >>
694   }%
695 }

```

We rely on `hyperref` to tell us how the PDF will be generated (after all, it may not be done in the current pass) and use the respective technique to embed the XMP packet.

```

696 \AtBeginDocument{%
697   \begingroup
698   \def\ccxmp@driver{hpdftex}%
699   \ifx\ccxmp@driver\Hy@driver
700     \ccxmp@embed@packet@pdftex
701   \else
702     \def\ccxmp@driver{hdvipdfm}%
703     \ifx\ccxmp@driver\Hy@driver
704       \ccxmp@embed@packet@dvipdfm
705     \else
706       \def\ccxmp@driver{hxetex}%
707       \ifx\ccxmp@driver\Hy@driver
708         \ccxmp@embed@packet@xetex
709       \else
710         \ifundefined{pdfmark}{-}{%
711           \ccxmp@embed@packet@pdfmark
712         }%
713       \fi
714     \fi
715   \fi
716   \endgroup
717 }
718 %%
719 %% Copyright (C) 2014 Digital Curation Centre, University of Edinburgh
720 %% <info@dcc.ac.uk>
721 %%
722 %% End of file 'dccpaper-base.tex'.

```

Installation

Managed way

The latest stable release of the dccpaper bundle has been packaged for T_EX Live and MiK_TE_X. If you are running T_EX Live and have tlmgr installed, you can install the bundle simply by running `tlmgr install dccpaper`. If you are running MiK_TE_X, you can install the bundle by running `mpm --install=dccpaper`. Both tlmgr and mpm have GUI versions that you might find friendlier.

Automated way

A makefile is provided which you can use with the Make utility:

- Running `make` generates the derived files
 - README
 - dccpaper.pdf
 - ijdc-v9.cls
 - idcc.cls
 - dccpaper-base.tex
 - dccpaper-apacite.bib
 - dccpaper-biblatex.bib
- Running `make inst` installs the files in the user's T_EX tree.
- Running `make install` installs the files in the local T_EX tree.

Manual way

1. Compile `dccpaper.dtx` just as you would a normal L^AT_EX file. Bear in mind the documentation requires the biblatex package and the Biber tool rather than regular BibT_EX. As well as the usual PDF (or DVI) and auxiliary files, several others are generated.
2. Rename `README.txt` to `README` (if you like).
3. Move the files to your T_EX tree as follows:
 - `source/latex/dccpaper`: `dccpaper.dtx`, `dccpaper.ins`
 - `tex/latex/dccpaper`: `ijdc-v9.cls`, `idcc.cls`, `dccpaper-base.tex`, `dccpaper-by.eps`, `dccpaper-by.pdf`
 - `doc/latex/dccpaper`: `dccpaper.pdf`, `dccpaper-apacite.bib`, `dccpaper-biblatex.bib`, `README`
4. You may then have to update your installation's file name database before T_EX and friends can see the files.

Licence

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